

### **CLAIMS**

1. (Currently Amended) A method, comprising:  
receiving fault classification data associated with a tool fault condition, the tool fault condition being associated with a process tool for processing a wafer; and  
estimating at least one yield parameter of the wafer based on the fault classification data.
2. (Original) The method of claim 1, wherein estimating the at least one yield parameter further comprises estimating an overall yield parameter.
3. (Original) The method of claim 2, wherein estimating the overall yield parameter further comprises estimating a number of die lost.
4. (Original) The method of claim 2, wherein estimating the overall yield parameter further comprises estimating a percentage of die lost.
5. (Original) The method of claim 1, wherein estimating the at least one yield parameter further comprises estimating a performance yield parameter.
6. (Original) The method of claim 5, wherein estimating the performance yield parameter further comprises estimating a speed yield parameter.

7. (Original) The method of claim 1, wherein estimating the at least one yield parameter further comprises associating at least one estimated yield parameter with a fault class specified by the fault classification data.

8. (Currently Amended) The method of claim 7, further comprising:  
determining an actual yield parameter for ~~[[a]]~~ the wafer; and  
updating the estimated yield parameter based on the actual yield parameter.

9. (Currently Amended) The method of claim 1, further comprising removing ~~[[a]]~~ the process tool associated with the tool fault condition from service responsive to the estimated yield parameter being outside a predetermined range.

10. (Currently Amended) The method of claim 1, further comprising scrapping ~~[[a]]~~ the wafer ~~associated with the fault condition~~ responsive to the estimated yield parameter being outside a predetermined range.

11. (Currently Amended) The method of claim 1, further comprising:  
determining process/step data associated with the tool fault condition; and  
estimating at least one yield parameter based on the fault classification data and the  
process/step data.

12. (Original) The method of claim 11, further comprising estimating a plurality of yield parameters based on the fault classification data and the process/step data.

13. (Original) The method of claim 1, further comprising estimating a plurality of yield parameters based on the fault classification data.

14. (Currently Amended) A system, comprising:

a fault classification unit adapted to generate fault classification data associated with a tool fault condition, the tool fault condition being associated with a process tool for processing a wafer; and

a yield estimation unit adapted to estimate at least one yield parameter of the wafer based on the fault classification data.

15. (Original) The system of claim 14, wherein the at least one yield parameter further comprises an overall yield parameter.

16. (Original) The system of claim 15, wherein the overall yield parameter further comprises an estimated number of die lost.

17. (Original) The system of claim 15, wherein the overall yield parameter further comprises an estimated percentage of die lost.

18. (Original) The system of claim 14, wherein the at least one yield parameter further comprises a performance yield parameter.

19. (Original) The system of claim 18, wherein the performance yield parameter further comprises a speed yield parameter.

20. (Original) The system of claim 14, further comprising a yield estimation database adapted to store data associating at least one estimated yield parameter with a fault class specified by the fault classification data, wherein the fault estimation unit is further adapted to access the fault classification database to estimate the at least one yield parameter.

21. (Currently Amended) The system of claim 20, wherein the yield estimation unit is further adapted to receive an actual yield parameter for the wafer and update the estimated yield parameter based on the actual yield parameter.

22. (Currently Amended) The system of claim 14, wherein the yield estimation unit is further adapted to recommend removing the process tool associated with the tool fault condition from service responsive to the estimated yield parameter being outside a predetermined range.

23. (Currently Amended) The system of claim 14, wherein the yield estimation unit is further adapted to recommend scrapping ~~[[a]] the wafer associated with the fault condition~~ responsive to the estimated yield parameter being outside a predetermined range.

24. (Currently Amended) The system of claim 14, wherein the yield estimation unit is further adapted to determine process/step data associated with the tool fault condition and estimate at least one yield parameter based on the fault classification data and the process/step data.

25. (Original) The system of claim 24, wherein the yield estimation unit is further adapted to estimate a plurality of yield parameters based on the fault classification data and the process/step data.

26. (Original) The system of claim 14, wherein the yield estimation unit is further adapted to estimate a plurality of yield parameters based on the fault classification data.

27. (Currently Amended) A system, comprising:

means for receiving fault classification data associated with a tool fault condition, the tool  
fault condition being associated with a process tool for processing a wafer; and  
means for estimating at least one yield parameter of the wafer based on the fault  
classification data.

28. (New) A method, comprising:

receiving fault classification data associated with a fault condition; and

estimating at least one speed yield parameter based on the fault classification data.

29. (New) A system, comprising:

a fault classification unit adapted to generate fault classification data associated with a  
fault condition; and

a yield estimation unit adapted to estimate at least one speed yield parameter based on the  
fault classification data.